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Development of the Sacate Anticline, Offshore California: Structural Modeling and Extended Reach Drilling Success

Development of the Sacate anticline was initiated in 1999. To date, ExxonMobil has drilled five successful development wells into the anticline. Sacate is being developed from the existing platform Heritage via extended reach drilling. The emergence of extended reach drilling technology has been a key to the project's success. The current development consists of three oil wells completed in the fractured Monterey chert and two dual completions, which are completed in a sandstone oil and gas reservoir in addition to the overlying oil-bearing Monterey. The field holds the worldwide deepwater extended reach record and the North American extended reach record with 21,277" of throw at a TVD of 6,704". The planned sixth development well, scheduled to spud in January of 2002 with a throw of ~35,000" at ~7,000" TVD will exceed this record.

The complex overprinting tectonics at Sacate are incompletely resolved by the 3D seismic data over the field. Remaining field potential lies in areas that are poorly imaged by seismic, and those areas are often far from exploration wells. The less than optimal seismic image combined with a complex structural pattern results in a large range of outcomes for development wells. We have managed this uncertainty by generating geologically consistent structural models and targeting locations that have the most upside potential. This strategy has been successful for the first five wells of the development, and the sixth well will be the boldest test of both extended reach drilling and structural modeling capabilities.